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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/676,891

09/30/2003

Xiao-Fan Feng

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EXAMINER

AMINI, JAVID A

ART UNIT

PAPER NUMBER

2628

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/676,891

Applicant(s)

FENG ET AL.

Examiner

Javid A. Amini

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10,12-16,18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10,12-16,18 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Arguments

Applicant's arguments filed 6/30/2007 have been fully considered but they are not persuasive.

The rejections of Double Patenting and 35 USC 101 have been withdrawn.

Applicant on page 12 in second paragraph argues the method of Winder does not teach any form of dither pattern array.

Examiner's interpretation regarding "dither patterns": Dithering performs a number of functions. It allows the identification and removal of small-scale detector defects such as bad pixels, it reduces noise from the effects of pixel-to-pixel errors in the flat field (in fact for large numbers of dithers a flat field can be constructed from the data themselves), and sub-pixel dithering can be used to recover some level of information which would otherwise be lost through undersampling of the array.

Examiner's reply: claim 1 is broad, and does not explicitly pinpoint what exactly is claimed, e.g., does it operate from bad pixels to good pixels using Gaussian filter kernels, see Winder at [0128]? Or as the second reference Metaxas illustrates an image in fig. 1 with two different tones. With that perception, Examiner believes that both references teach "creating a dither pattern array".

Applicant on the same page argues that the first reference Winder does not teach a repellent function.

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Examiner's reply: The amended claim recites "repellent function" that the reference does not explicitly specify the repellent function. Note: As in the specification [0034] discloses the repellent function may be implemented with a convolution kernel.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10, 12-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over John Winder et al. Pub. No.: 2004/0252759 A1, hereinafter refers as "Winder", and in view of Trifonov et al. US 6,950, 211B2, hereinafter Trifonov.

1. Claim 1.

Winder at paragraphs [0009-0010] teaches a method for creating a dither pattern (or noise, see page 2 line 18 of the specification) array, Examiner's interpretation: a dither pattern array may be similar to a frame(s), see in fig. 4 of the specification, or as Winder discloses, "generating a tool such as a frame synthesizer" said method comprising: assigning a value to pixels (Winder at paragraph [0010] teaches a tool measures the difference between two pixel values from different frames, which are to be combined for a pixel in a synthesized output frame) in a dither pattern array tile such that each consecutive pixel value is placed at a location (Winder at paragraph [0048] teaches) that is dispersed from previously-placed pixel values (Applicant admits that assignment of values to pixels is known in the art, see page 12 of the

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remarks) that are located in other color channels and other temporal frames, wherein said location is determined with a combined, cross-color-channel (Winder at paragraph [0097] teaches chrominance channels), spatio-temporal repellent function.

Winder does not explicitly specify “spatio-temporal repellent function”, However, Trifonov teaches “spatio-temporal repellent function”, i.e. noted in fig. 4, also see in col. 4 lines 22-23 as a known method for removal of fine moiré patterns using Gaussian blurring, Examiner’s interpretation: the moiré pattern may be blurred using Gaussian blurring, in general i.e. creating a dither pattern array.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Trifonov into the system of Winder in order to enable the user to obtain the desired visibility by reducing the noise/artifacts.

2. Claim 2.

Winder at paragraph [0097] teaches chrominance channels that disperses from previously-placed pixel values in said other color channels is weighted differently from dispersion from said previously-placed pixel values in said other temporal frames. Winder discloses at paragraph [0010] that the tool measures the difference between two pixel values from different frames, which are to be combined for a pixel in a synthesized output frame.

3. Claim 3.

Winder at paragraph [0010] teaches the dispersion from previously-placed pixel values in other color channels is weighted such that dispersion from previously-placed pixel values in a first color channel is weighted differently from dispersion from previously-placed pixel values in

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a second color channel. Winder discloses: the tool measures the difference between two pixel values from different frames, which are to be combined for a pixel in a synthesized output frame.

4. Claim 4.

Claim 4 is rejected with similar reason as set forth in claim 1, above. However, in amended claim 4 line 10 recites “another image”, i.e. well known in the art, because e.g., in Metaxas fig. 1 illustrates the same image but they are totally in different resolution, visibility, and the first image is considered as another image. Note: the concept of this manipulation of an image is taught by the two references that rejected claim 1.

5. Claims 5-6.

Claims 5-6 are rejected with similar reason as set forth in claim 4, above.

6. Claim 7.

A method according to claim 4 wherein said relation to the location of previously-designated pixels is channel specific such that pixel values in one color channel have a different relationship on said location than pixel values in another channel. Winder at paragraph [0048] teaches, “Forward-warped past frame and a backward-warped future frame” i.e. similar to what the claim language recited as “previously-designated pixels is channel and pixel values in another channel”.

7. Claim 8.

The rejection of claim 7 applies to the rejection of claim 8, the relation to the location of previously-designated pixels is channel specific such that pixel values in color channels other than the channel of the pixel being designated have a different relationship than pixel values in the same channel.

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8. Claim 9.

Winder at paragraph [0097] teaches a method wherein said image description channels are color channels.

9. Claim 10.

Winder does not explicitly specify the image description channels comprise three (Winder at paragraph [0097] teaches luminance (Examiner's interpretation: combination of Red, Blue and Green colors) channel) channels for each of a red, green and blue color. However,

Metaxas on page 36 at left column second paragraph teaches the introduction of color is handled through four superimposed halftones, cyan (Examiner's interpretation: is equivalent to blue-green color), yellow, magenta (Examiner's interpretation: is equivalent to red-blue color) and black.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Metaxas into the system of Winder in order to enable the user to obtain the desired visibility by reducing the noise/artifacts onto a larger area, and therefore improve the efficiency of the device.

10. Claim 12.

Claim 12 is rejected with similar reason as set forth in claim 4, above.

11. Claim 13.

Claim 13 is rejected with similar reason as set forth in claim 1, above.

12. Claim 14.

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Winder at paragraph [0178] chooses a threshold to determine the dispersion from pixel values in other temporal frames is weighted wherein temporal frames more temporally distant from a to-be-designated pixel value have a lower dispersion than closer temporal frames.

13. Claim 15.

Winder at paragraph [0178] chooses a threshold to determine the dispersion from pixel values in other color channels is weighted wherein other color channels have a lower dispersion than the color channel in which a pixel value is being designated.

14. Claim 16.

Claim 16 is rejected with similar reason as set forth in claim 13, above.

15. Claim 18.

Claim 18 is rejected with similar reason as set forth in claim 1, above.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Winder.

Claim 20.

Winder in [0009-0010] teaches according to his first and second aspects “A method for creating a spatio-temporal array of dither patterns, said method comprising: a. establishing a first temporal frameset comprising dither pattern tiles for each of a plurality of color channels;”

Winder in [0010-0011] teaches “b. selecting a first pixel value level for subsequent pixel value designation; c. establishing a pixel quantity;” Winder in [0097] teaches “d. selecting a color channel for pixel value designation;” Winder in [0103] teaches “e. calculating the location of an extreme value of a combined cross-color- channel and spatial/temporal repellent function that is influenced by the presence of designated pixels in said selected color channel, another color channel and another temporal frame;” Winder in [0042, and 0157] teaches “f. designating a pixel

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value corresponding to said first pixel value level at said location;” Winder in [0168] teaches “g. updating said combined function to account for the presence of said newly designated pixel value;” Winder in [0103] teaches “h. selecting a new color channel”, from here on the steps are repeating, see following steps:

- i. repeating steps e through h until a pixel value has been designated in all color channels;
- j. incrementing a pixel counter value;
- k. repeating steps e through j until said pixel counter value equals said pixel quantity;
- l. selecting a new pixel value level;
- m. repeating steps b through l until all levels have been designated;
- n. advancing to the next temporal frame; and
- o. repeating steps b through n until all temporal frames have been designated.

Examiner’s point of views: Since the claimed invention does not explicitly specify the visibility of the “dither patterns” with respect e.g., to what Winder’s system produces wanted/unwanted data information from a frame using filter e.g., Gaussian filter kernel, see [0128].

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute applicant ’s described structure, by manipulating the parameters in the Gaussian filter kernel in the Winder, e.g., using Gaussian filter kernel as a Gaussian Blur (a type of image filter commonly used to blur an object. It may be used to blur the entire image or to produce a drop shadow effect).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Javid A. Amini whose telephone number is 571-272-7654. The examiner can normally be reached on 8-4pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on 571-272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Javid A Amini
Examiner
Art Unit 2628

J.A.

A handwritten signature in black ink, appearing to read 'Kee M. Tung', with a long, sweeping horizontal stroke extending to the right.

KEE M. TUNG
SUPERVISORY PATENT EXAMINER